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Fuel Cycle Options (FCO) Campaign

Patricia Paviet, Director, Office of Systems Engineering and Integration

NEUP Webinar
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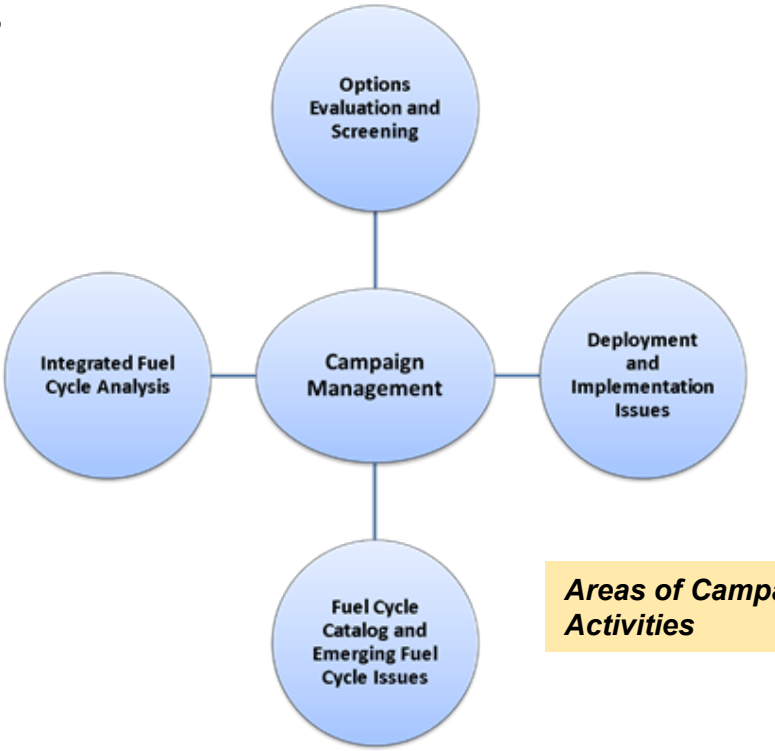
Campaign Objective

- **Develop and implement analysis processes and tools and perform integrated fuel cycle evaluations to provide information that can be used to objectively and transparently inform DOE-NE as decisions are made about overall R&D directions and to integrate Office of Fuel Cycle Technologies activities through R&D efforts on common fuel cycle goals**



Areas of Campaign Activities

Campaign Focus Areas

- Develop and manage processes that can be used for guiding selection of one or more sustainable alternative fuel cycle options and prioritizing research and development
- Perform analyses and studies of fuel cycle options that are objective and reproducible
- Contribute to the development of knowledge management systems that support transparent decision making for research and development investments and ensure that past, present and future program results are traceable and available
- Develop the approaches and materials for communication of FCT program objectives, values, and accomplishments to stakeholders

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Recent Activities in Campaign

- Complete fuel cycle evaluation and screening (E&S) to identify promising fuel cycle options that have the potential for substantial improvement compared to the current U.S. fuel cycle and issue associated reports and documents
- Initiate and conduct detailed analyses on the transition and deployment of promising fuel cycle option groups identified from the E&S Study
- Initiate development of enhanced economic analysis capabilities
- Initiate and conduct detailed analyses of the fuel cycle options contained in the promising fuel cycle option groups to develop further understanding of beneficial fuel cycle characteristics
- Develop the publicly-available Fuel Cycle Catalog

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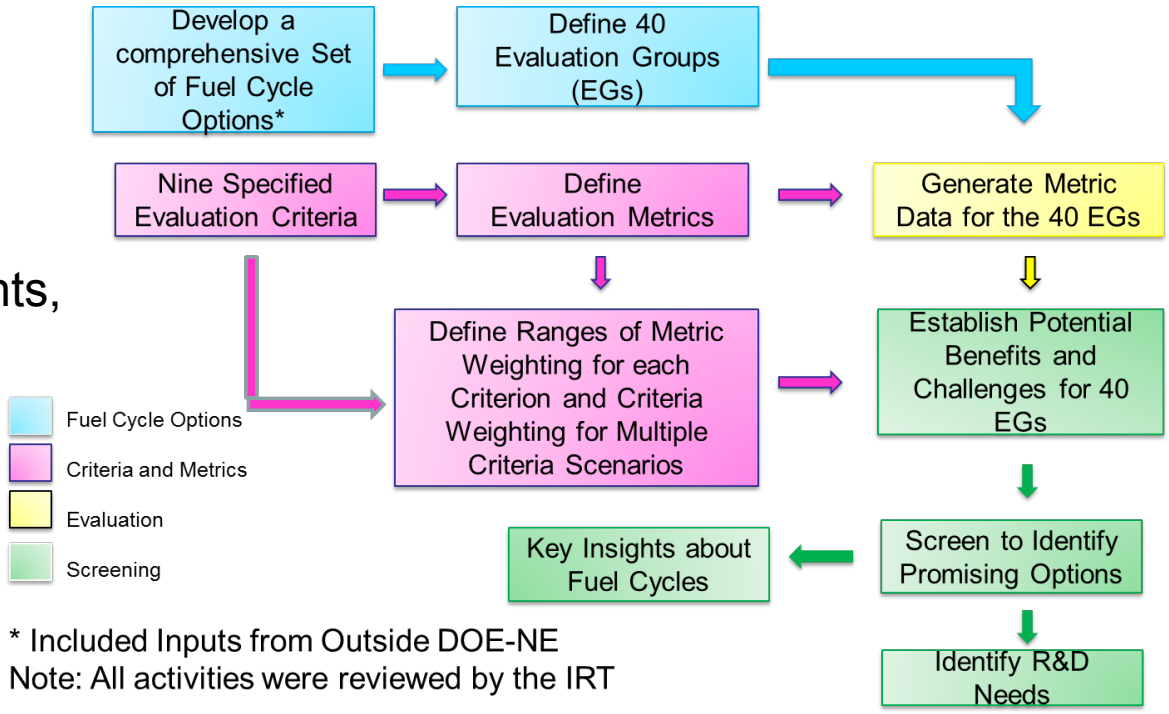
The Evaluation and Screening of Nuclear Fuel Cycle Options

- **DOE-NE chartered the Evaluation and Screening Study to strengthen the basis for DOE-NE R&D decisions**
  - Provide information about potential benefits & challenges of fuel cycle options
  - Identify potential for substantial improvements, using nine evaluation criteria



* Included Inputs from Outside DOE-NE
Note: All activities were reviewed by the IRT

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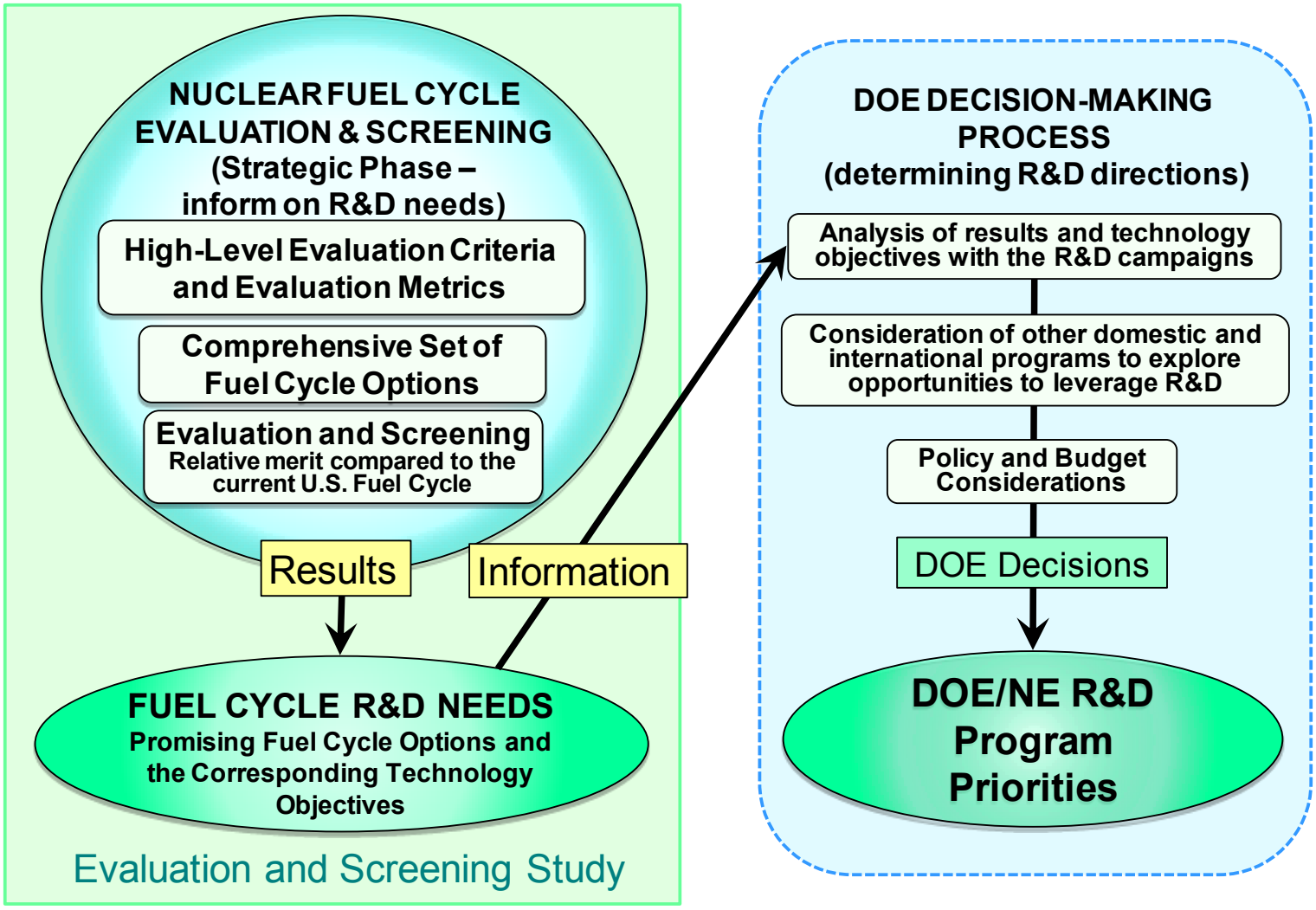
Informing DOE Nuclear Energy R&D Decision-Making



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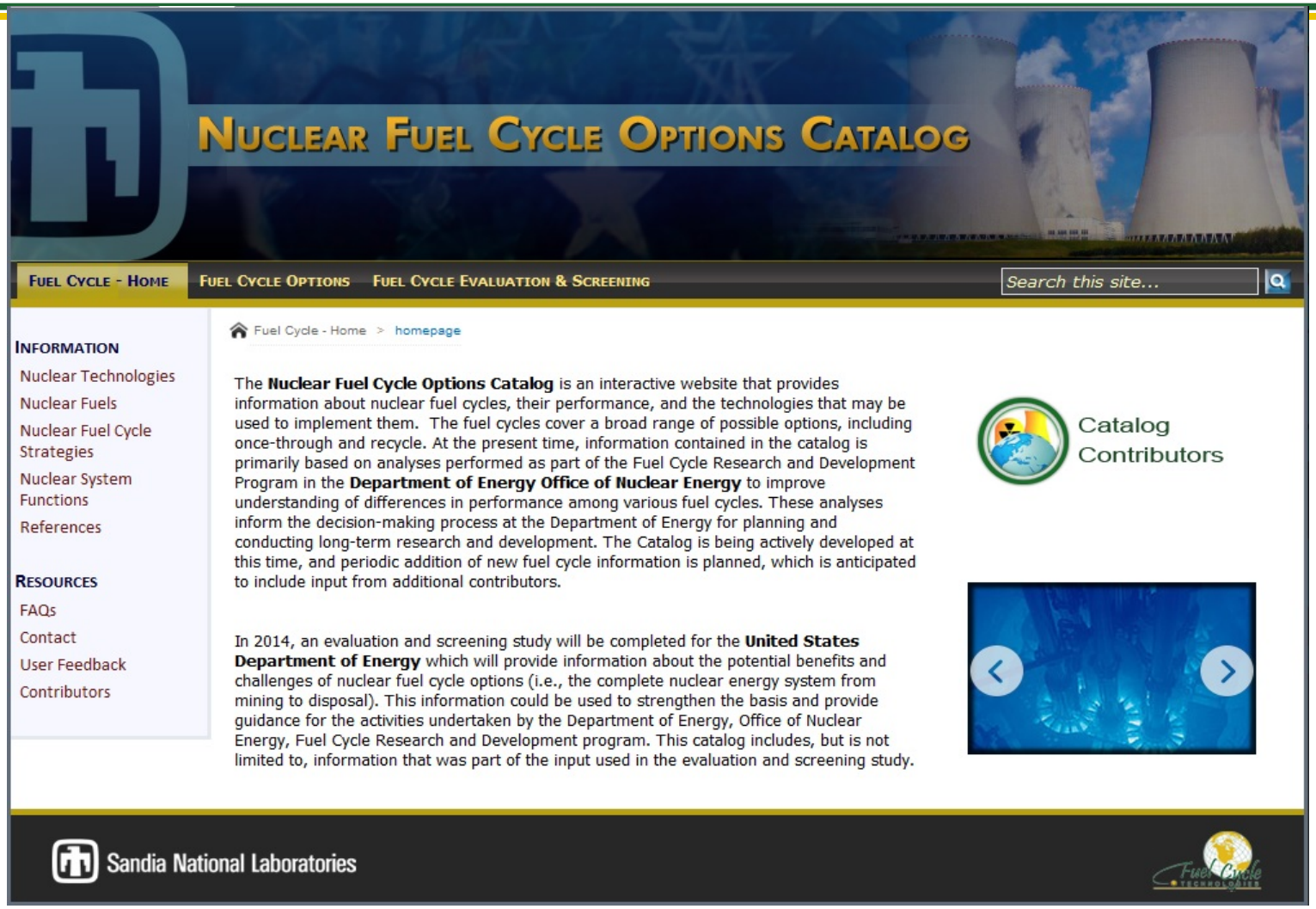
Catalog Home Page

https://connect.sandia.gov/sites/NuclearFuelCycleOptionCatalog



Purposes of the Catalog

- **Publicly-available resource of fuel cycle information**
- **Create, manage, and communicate traceable, searchable lists of fuel cycle system options and selected information on associated enabling technologies to support R&D investment decisions**
- **Provide an interactive tool to communicate the option space for nuclear fuel cycles**
- **Support R&D program planning by National Technical Directors and Federal managers**
- **Catalog hosted by Sandia National Laboratory**
  - Contributions to the Catalog to date have been from the DOE laboratories; future contributors are expected to include universities (mainly through the NEUP program) and others

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Some Recent NEUP Calls for FCO

- **Develop Fuel Cycle Simulator, including fuel cycle modules, interface modules and data modules**
  - Develop modules for the fuel cycle simulator that support specific types of fuel cycles or fuel cycle technologies
- **Develop improved methods to communicate nuclear energy and advanced fuel cycle analyses to policy makers, decision makers, and the public**
- **Create fuel cycle options data for the Fuel Cycle Options Catalog**
- **Conduct systems economic studies looking at the potential impact of and sensitivity to natural gas prices on the future of the U.S. nuclear fleet; include the impact of projected coal power changes as well**

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FCO NEUP Call for FY 2015 (FC-5) – Visualization Tool to Communicate Results

- **Program element is interested in development of a visualization tool to communicate to the public the outcomes of implementing different fuel cycles**
  - Focus will be on options that have been identified to offer promise in the Evaluation and Screening Study finalized by DOE-NE in 2014
- **Tool should allow comparative analysis of those nuclear energy systems to one another and a reference nuclear energy system and also to other energy sources, e.g., solar, biomass, oil, natural gas, wind, etc.**
- **The tool must be publicly available, easy and intuitive to use, and should be usable on different computer platforms, including laptop and handheld devices**

FCO NEUP Call for FY 2015 (FC-5) – Visualization Tool to Communicate Results

- **Example websites for ideas:**
- http://my2050.decc.gov.uk/
- http://2050-calculator-tool.decc.gov.uk/pathways/111111111111111111111111111111111111111111111111/primary_energy_chart